DATA VALIDATION REPORT

Gold King Mine Release Incident

SAMPLE DELIVERY GROUP: 680-115897-2

Prepared by

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I. INTRODUCTION

Task Order Title:	Gold King Mine Release Incident
Project No.:	20408.012.001.0267.00
Sample Delivery Group:	680-115897-2
EPA Project Manager:	Steve Way
Weston Project Manager:	Dave Robinson
TDD No.:	0001/1508-04
Matrix:	Water
QC Level:	Stage 2A
No. of Samples:	7
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica - Savannah

Table 1. Sample Identification

Location ID	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
A68_081915	680-115897-5	Water	08/19/2015 13:45	300.0
A68_081915D	680-115897-6	Water	08/19/2015 13:45	300.0
A72_081915	680-115897-7	Water	08/19/2015 14:15	300.0
CC06_081915	680-115897-1	Water	08/19/2015 09:30	300.0
CC48_081915	680-115897-8	Water	08/19/2015 15:00	300.0
GKMSW02_081915	680-115897-9	Water	08/19/2015 12:30	300.0
TP04_081914	680-115897-4	Water	08/19/2015 11:30	300.0

II. Sample Management

Anomalies regarding sample management were not observed, with several exceptions listed below. A portion of the samples were received below the temperature limit at 1.6°C; however, as the samples were not noted to be frozen or damaged, no qualifications were required. The remaining samples were received within the temperature limits of 4°C ±2°C. The chains-of-custody (COCs) were appropriately signed and dated by laboratory personnel. The presence or absence of custody seals on the cooler was not specifically noted.

- No issues were noted by the laboratory in the case narrative.
- The COCs did not list CLP sample IDs, and none were provided. The laboratory logged the samples per the location IDs on the COCs.
- The presence or absence of sample tags was not noted in the case narrative, and sample tags were not listed on the COCs.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.

Qualifier	Organics	Inorganics
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. EPA METHOD 300.0—Anions

Reviewed By: P. Meeks
Date Reviewed: August 25, 2015

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (2013), *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Inorganic Superfund Methods, EPA Method 300.0* and the *National Functional Guidelines for Superfund Inorganic Data Review* (2010).

- Holding Times: The 28-day holding time was met.

- Analytical Method Blanks: Anions were not detected in the method blank.

- Laboratory Control Samples: Anion recoveries were within the laboratory control limits of 90-110%, and RPDs were ≤30%.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on sample A68_081915 for chloride and fluoride and on CC06_081915 for fluoride and sulfate. The RPDs were within the laboratory control limit of ≤30%.

- Matrix Spike: MS/MSD analyses were performed on sample A68_081915 for chloride and fluoride and on CC06_081915 for fluoride and sulfate. Results were not assessed when the native concentrations were more than 4× the spike amount. Recoveries and the RPD were within the laboratory control limits of 80-120% and ≤20%, respectively.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Field Blanks and Equipment Rinsates: There were no field blanks or equipment rinsates identified in this SDG.

    - Field Duplicates: Samples A68_081915 and A68_081915D were identified as field duplicate samples. RPDs for the analytes detected above the RL were within the reasonable control limit of ≤30% and results below the RL were within ±RL.

Validated Sample Result Forms: 680-115897-2

Analysis Method 300.0

Sample Name CC06_081915 **Matrix Type:** Water

Lab Sample Name: 680-115897-1 **Sample Date:** 08/19/2015 09:30

Analyte	Analysis Fraction	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	T	16887-00-6	0.37	0.50	0.20	mg/L	J	J	
Fluoride	T	16984-48-8	12	5.0	2.0	mg/L			
Sulfate	T	14808-79-8	1700	50	20	mg/L			

Sample Name TP04_081914 **Matrix Type:** Water

Lab Sample Name: 680-115897-4 **Sample Date:** 08/19/2015 11:30

Analyte	Analysis Fraction	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	T	16887-00-6	1.0	0.50	0.20	mg/L			
Fluoride	T	16984-48-8	10	5.0	2.0	mg/L			
Sulfate	T	14808-79-8	1500	50	20	mg/L			

Sample Name A68_081915 **Matrix Type:** Water

Lab Sample Name: 680-115897-5 **Sample Date:** 08/19/2015 13:45

Analyte	Analysis Fraction	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	T	16887-00-6	0.54	0.50	0.20	mg/L			
Fluoride	T	16984-48-8	0.52	0.10	0.040	mg/L			
Sulfate	T	14808-79-8	98	5.0	2.0	mg/L			

Sample Name A68_081915D **Matrix Type:** Water

Lab Sample Name: 680-115897-6 **Sample Date:** 08/19/2015 13:45

Analyte	Analysis Fraction	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	T	16887-00-6	0.50	0.50	0.20	mg/L			
Fluoride	T	16984-48-8	0.46	0.10	0.040	mg/L			
Sulfate	T	14808-79-8	91	5.0	2.0	mg/L			

Sample Name A72_081915 **Matrix Type:** Water

Lab Sample Name: 680-115897-7 **Sample Date:** 08/19/2015 14:15

Analyte	Analysis Fraction	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	T	16887-00-6	0.81	0.50	0.20	mg/L			

Analysis Method 300.0

Fluoride	T	16984-48-8	0.56	0.10	0.040	mg/L			
Sulfate	T	14808-79-8	180	5.0	2.0	mg/L			

Sample Name CC48_081915 **Matrix Type:** Water

Lab Sample Name: 680-115897-8 **Sample Date:** 08/19/2015 15:00

Analyte	Analysis Fraction	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	T	16887-00-6	0.32	0.50	0.20	mg/L	J	J	
Fluoride	T	16984-48-8	2.2	0.10	0.040	mg/L			
Sulfate	T	14808-79-8	620	25	10	mg/L			

Sample Name GKMSW02_081915 **Matrix Type:** Water

Lab Sample Name: 680-115897-9 **Sample Date:** 08/19/2015 12:30

Analyte	Analysis Fraction	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	T	16887-00-6	0.99	0.50	0.20	mg/L			
Fluoride	T	16984-48-8	0.39	0.10	0.040	mg/L			
Sulfate	T	14808-79-8	100	5.0	2.0	mg/L			